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at the present time in view of the fact that the American Association for the Advancement of Science is expected to meet soon in this state and the question of forming a special section of this association for the purpose of considering topics in the history of science is to be raised during this meeting. Teachers of mathematics have an additional reason for taking an unusually keen interest in this subject just now in view of the appearance during the past summer of two very important books on the history of their subject.

"One of these is entitled 'History of the Theory of Numbers' and was prepared by Professor L. E. Dickson of the University of Chicago, while the other bears the more general title 'A History of Mathematics' and was prepared by Professor Florian Cajori, of the University of California, who holds the unique position of a regular professorship of the history of mathematics in a university. The former book is the first volume of the most complete history of number theory ever written and marks an epoch in American mathematical literature, while the latter is technically only a 'revised and enlarged edition' of a book which appeared a quarter of a century ago under the same title, but the changes are so extensive that it too may be regarded as practically a new work."]

SCIENTIFIC MONTHLY, volume 9, no. 5, November, 1919: "The controversy on the origin of our numerals" by F. Cajori, 458–464. [The article closes with the following summary: "The following are the outstanding facts:

1. The earliest reliable record of the use of our numerals with the zero is an inscription of 867 A.D. *in India.*
2. The validity of the testimony of early Arabic writers ascribing to India the numerals with the zero is shaken, but not destroyed.
3. There is not a scintilla of evidence in the form of old manuscripts or numeral inscriptions to support the Greek origin of our numerals.
4. At present the hypothesis of the Hindu origin of our numerals stands without any serious rival. But this hypothesis is by no means firmly established.

As a by-product of the discussion of recent years we must admit that, on the evidence presented, the claim that our numerals and the zero were used in India as early as the fifth century must be abandoned; our earliest apparently reliable evidence belongs to the ninth century. We must also abandon the claim that the early Hindus used the abacus, the rule of 'double false position,' and the process of 'casting out the nines.' These corrections are due to G. R. Kaye."]

UNIVERSITY OF TEXAS BULLETIN, no. 1904, January, 1919: *A comparison of the premiums of the Teachers Insurance and Annuity Association with those of other legal reserve companies,* by E. L. Dodd, 19 pp.

UNDERGRADUATE MATHEMATICS CLUBS.

EDITED BY U. G. MITCHELL, University of Kansas, Lawrence.

THE MATHEMATICS CLUB OF THE UNIVERSITY OF KANSAS, Lawrence, Kansas. [*1918,* 35, 450, 459; *1919,* 208.]

The officers of the club for the year 1919–20 are as follows: President, Jessie Craig '20; vice-president, Beatrice Hagen '20; secretary-treasurer, Evelina Watt '20; reporter, Etna Morrison '20; faculty adviser, Professor Ellis B. Stouffer; program committee, the faculty adviser, the secretary, the reporter and Ruth Kelsey '20.

Below are given the programs for the year 1919–20, as announced in the printed folder issued by the club.

October 9, 1919: "Codes and Ciphers" by Professor Ulysses G. Mitchell.
October 23: "The game of nim" by Etna Morrison '20.

November 13: "De Moivre's theorem" by Lucile Noah '20.
December 11: "Hyperbolic functions" by Marie McKinney '21.
January 8, 1920: "Sailing quicker than the wind" by Marie Shaklee '21; "Famous problems of antiquity" by Nadene Weibel '21.
January 22: "Mathematics of the calendar" by Lillie Strand '21.
February 12: "Life and works of Newton" by Hilda Bushnell '21; "The Leibniz-Newton controversy" by Wayne Stevenson '20.
February 26: "Mathematical machines" by Victor Mellenbruch Gr., and Eran O. Burgert Gr.
March 11: "Mathematics in France" by Professor Solomon L. Lefschetz; "Mathematicians of America" by Professor Cyril A. Nelson.
March 25: "Flatland" by Nina McLatchey Gr. Play "Flatlanders" by members of the club.
April 8: "Origin of number symbols" by Marie Power '20.
April 22: "Geometric fallacies" by Marie Brown '21.
May 13: "Magic squares" by Pearl L. Mellenbruch Gr.
May 27: Annual picnic.

THE MATHEMATICAL CLUB OF ROCKFORD COLLEGE, Rockford, Illinois. [*1918*, 188, 409.]

The officers of the club for the year 1918–19 were: President, Ruth Gleasman '19; vice-president, Dorothy Jamison '20; secretary-treasurer, Lucy E. Brown '20.

The following programs were given during the year.

September, 1918: Initiation of new members.
November: "The Ueberfeld Horses," from Maeterlinck's *The Unknown Guest*, by Lea Gordon '20.
December: "Problems in paper cutting" by Aline Bartholomew '20.
January, 1919: "Comet's tails" by Professor Bessie I. Miller.
February: "Magic squares and mathematical tricks" by Dorothy Jamison '20.
March: Geometrical recreations—"Geometrical fallacies" by Anna Foster '21; "Geometrical paradoxes" by Bohnmilla Hrdlicka '21; "Geodesics" by Elizabeth Rearick '20.
April: "Short cuts in calculation" by Margaret Dodd '21.
May: "The theory of probability" by Ruth Gleasman '19.

Membership in the club is limited to students who have taken or are taking elective work in mathematics. At present there are seventeen members. The officers for the year 1919–20 are: President, Dorothy Jamison '20; vice-president, Virginia Schneider '20; secretary-treasurer, Frances Regan '21.

THE UNIVERSITY OF SASKATCHEWAN MATHEMATICAL SOCIETY, Saskatoon, Saskatchewan. [*1918*, 270, 460.]

On account of the interruption of the University work by the influenza epidemic no meeting of the society was held during the year 1918–19 before

Christmas. The first meeting of the new year was held in February, 1919. Gladys Shannon '20 presented a paper on "The concept of infinity in geometry." The paper was followed by considerable discussion and it was decided that the subject should be given further consideration at the second meeting.

The second meeting was held at the residence of Professor Lloyd L. Dines and about twenty members were present. The discussion of the subject of the first meeting was continued by John H. Simester '20, Lillian Williamson '21, Helen Fernald '21 and Gladys Shannon '20, as well as by nearly all of the other members present.

The third and last meeting for the year 1918–19 was held at the residence of Dean George H. Ling and about fifteen members were present. John H. Simester '20 presented a paper on "The logic of algebra" and after a discussion of it several interesting problems were presented by members of the club. A resolution was introduced and passed unanimously that hereafter the society should be called "The Shuttleworth Mathematical Society of the University of Saskatchewan" in honor of the late Roy Shuttleworth, who was the first president of the club and who fell in France in August 1918 after having won the Military Medal for distinguished services.

The following officers were elected for the year 1919–20: President, John H. Simester '20; vice-president, Gladys Shannon '20; secretary-treasurer, Andrew M. Ridout '21.

THE MATHEMATICS CLUB OF VASSAR COLLEGE, Poughkeepsie, N. Y.

[*1918*, 136, 456; *1919*, 264.]

The officers for the first semester of the year 1918–19 were: President, Helen Thompson '19; vice-president, Susan Burr '20; secretary-treasurer, Helen Lewis '20; faculty member of executive committee, Professor Elizabeth B. Cowley; student member of executive committee, Mildred Booth '20.

Below are given the programs for the year 1918–19.

October 4, 1918: Business meeting for election of officers for first semester. After the election the members of the club "took a hike."

November 6: "Spherical aberration" by Professor Henry S. White; "Some mathematical fallacies" by Kathleen Millay '21. The members of the club had an animated discussion over the fallacies. Some problems were proposed for solution before the next meeting.

December 3: "Air resistance against rotating projectiles" by Eliza Sommerville '20; "Underwater trajectories and phenomena of flight" by Mildred Werntz '20. It was announced that Amy Davison '21 had solved the problems proposed at the last meeting. It was also announced that a list of examples and questions that were intended to test personal efficiency had been placed on the bulletin board. They had been clipped from a newspaper.

January 16, 1919: A play "Flatlanders"[1] written by Kathleen Millay '21 and Lucille Free '21 was presented by members of the club.

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[1] Published in full in the June, 1919, number of the MONTHLY, pp. 264–267.

February 27: Election of officers for second semester: President, Helen Thompson '19; vice-president, Susan Burr '20; secretary-treasurer, Helen Lewis '20; faculty member of executive committee, Professor Cowley; student member of executive committee, Mary Coye '20.

Subject of program "The fourth dimension." Mary Coye '20 explained it by the use of an analogy; Katherine Jaeger '19 gave historical data; Amy Davison '21 discussed some of the theoretical aspects.

It was recommended that in the future some of the meetings be held in other places than in Rockefeller Hall (recitation hall).

April 10: "A brief account of the life of Lewis Carroll" by Pauline Chrisler '19; "Lewis Carroll as a mathematician" by Christie White '19; "An adaptation of Stephen Leacock's essay on 'A, B, and C'" (reading) by Jean Proutt '19.

The meeting was held in senior parlor. Mrs. H. S. White and some freshmen were invited as guests of the club. After the formal program and business session were over tea was served.

May 20: The club had a picnic near the "old lake." A short business meeting was held and then mathematical games were played until supper time.

The officers elected for the first semester of the year 1919–20 are: President, Mildred Booth '20; vice-president, Amy Davison '21; secretary-treasurer, Susan Burr '20; faculty member of the executive committee, Professor Cowley; student member of the executive committee, Mary Coye '20.

SUMMARY NOTES—1919.

The establishment of the Students Army Training Camps at various universities and the outbreak of the epidemic of influenza in the fall of 1918 interfered greatly with the work of undergraduate mathematics clubs. Of thirty-three clubs which reported during 1919 on the work of the school year 1918–19, nineteen—University of Alabama, University of Chicago, University of Colorado, Greenville College, Grinnell College, University of North Carolina, University of Oregon, Swarthmore College, Albion College, Columbia University, Denison University, Harvard University, University of Illinois, University of Kansas, University of Kentucky, University of Maine and University of Nebraska—do not mention any meetings during the period from September first 1918 to January first 1919 and the first eight of these clubs are reported as remaining inactive during the entire school year. Nearly all of these inactive clubs have reported that they expect their work during the year 1919–20 to be back to normal activity again.

One new club, that of the University of Iowa, was organized in April 1919.

During 1919 the MONTHLY has published reports of the activities of twenty different clubs. These reports included accounts of more than 100 meetings and a list of about 160 topics discussed. Discussions of two club topics, "The Number π" and "Codes and Ciphers," have been published and some suggestions given as to forms of entertainment for social meetings.